ABSTRACT

Salicylamide pH-rate Profile in Acidic pH

Salicylamide is a nonsteroidal anti-inflammatory drug (NSAID) with analgesic and antipyretic properties. Salicylamide has the characteristics as a weak acid with pKa 8,1. As a weak acid, the increasing pH also increasing the ionization characteristic. The greater amount of the ionized phase makes it more chemically reactive. Salicylamide in buffer solution concentration 0,02 M and ionic strength 0,2 was made in various pH (2,0; 3,0; 4,0; 5,0; 6,0 ± 0,05) then incubated in temperature 40 ± 0,5 ^{o}C within six hours. Salicylamide solution sampled in 5 different times (0, 1h, 2h, 4h, and 6h) then analyzed using thin layer chromatography (TLC) method to determine its concentration. The TLC method using dichloromethane:acetone (4:1) as the mobile phase, TLC silica gel 60 F_{254} plate as the stationary phase, and Shimadzu CS-930 densitometer. The reaction rate (k) of salicylamide in various pH determined with 3 replications. The result showed that salicylamide follows first orde reaction. The value of k in pH 2,0; 3,0; 4,0; 5,0; 6,0 respectively $4{,}57x10^{-2} \pm 3{,}52\ x10^{-2}$; $2{,}61x10^{-2} \pm 1{,}73x10^{-2}$; $3{,}78x10^{-2} \pm 3{,}14x10^{-2}$; $3{,}47x10^{-2} \pm 3{,}38x10^{-2}$; $1{,}50x10^{-2} \pm 3{,}36x10^{-3}$ jam^{-1}. There was no significant difference of k value between pH groups statistically. From a plot of pH versus log k, salicylamide pH-rate profile is obtained.

Keywords: Salicylamide, pH-rate profile, Thin Layer Chromatography, stability, pH effect